Complete Summary

GUIDELINE TITLE

Potassium in pre-dialysis patients.

BIBLIOGRAPHIC SOURCE(S)

Caring for Australasians with Renal Impairment. Potassium in pre-dialysis patients. Nephrology 2005;10(Suppl 5):S188-90.

Voss D. Potassium in pre-dialysis patients. Westmead NSW (Australia): CARI - Caring for Australasians with Renal Impairment; 2005 Dec. 6 p. [3 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Chronic kidney disease (CKD)

GUIDELINE CATEGORY

Evaluation
Management
Treatment

CLINICAL SPECIALTY

Family Practice
Internal Medicine

Nephrology
Nutrition

INTENDED USERS

Dietitians
Physicians

GUIDELINE OBJECTIVE(S)

To examine recommended dietary intake of potassium, goal plasma potassium levels, and differences in morbidity and mortality that have been reported

TARGET POPULATION

Patients with chronic kidney disease

INTERVENTIONS AND PRACTICES CONSIDERED

1. Monitoring serum potassium levels and assessment for hyperkalemia and hypokalemia
2. Correction of hyperkalemia and hypokalemia
3. Reduced potassium diet

MAJOR OUTCOMES CONSIDERED

- Plasma potassium levels
- Risk of cardiac arrhythmias
- Morbidity and mortality

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Databases searched: Medical Subject Heading (MeSH) terms and text words for kidney disease were combined with MeSH terms and text words for dietary potassium then combined with the Cochrane highly sensitive search strategy for randomised controlled trials and search filters for identifying prognosis and aetiology studies. The search was carried out in Medline (1996 – November Week 2, 2003). The Cochrane Renal Group Trials Register was also searched for trials not indexed in Medline.

Date of searches: 27 November 2003.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence

Level I: Evidence obtained from a systematic review of all relevant randomized controlled trials (RCTs)

Level II: Evidence obtained from at least one properly designed RCT

Level III: Evidence obtained from well-designed pseudo-randomized controlled trials (alternate allocation or some other method); comparative studies with concurrent controls and allocation not randomized, cohort studies, case-control studies, interrupted time series with a control group; comparative studies with historical control, two or more single arm studies, interrupted time series without a parallel control group

Level IV: Evidence obtained from case series, either post-test or pretest/post-test

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Comparison with Guidelines from Other Groups
Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Recommendations of Others. Recommendations regarding dietary potassium in patients with chronic kidney disease from the following groups were discussed: Kidney Disease Outcomes Quality Initiative, British Renal Association, Canadian Society of Nephrology, and European Dialysis & Transplant Nurses Association/European Renal Care Association.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Definitions for the levels of evidence (I–IV) can be found at the end of the "Major Recommendations" field.

Guidelines

No recommendations possible based on Level I or II evidence

Suggestions for Clinical Care

(Suggestions are based on Level III and IV evidence)

- Serum potassium should be regularly monitored, and a reduced potassium diet commenced when serum potassium is greater than 5.5 mmol/L. (**Opinion**)

The risk of cardiac arrhythmias is higher when the potassium is above 6.5 mmol/L or when the potassium is below 3.0 mmol/L. Patients who are especially at risk of cardiac arrhythmias are those with ischaemic heart disease, previous arrhythmias, or low serum calcium.

Potassium excretion is maintained in renal disease unless distal tubular urine flows or aldosterone secretion is affected.

When hyperkalaemia develops in the chronic kidney disease (CKD) patient, one of the following should be looked for, and when possible, corrected:

1. High potassium intake (including salt substitutes in sodium-reduced diets)
2. Oliguria
3. Hypoaldosteronism
4. Metabolic acidosis

5. Medications that either contain potassium or inhibit the clearance of potassium, such as angiotensin-converting enzyme (ACE) inhibitors, corticosteroids, and potassium-sparing diuretics

Conversely, hypokalaemia may develop in the CKD patient when:

1. A low potassium diet is implemented, including poor/low food nutrition intake
2. Overuse or inappropriate use of potassium-lowering agents is occurring, e.g. ion-exchange resins
3. Overuse or inappropriate use of diuretics is present

A reduced potassium diet should limit the 24-hour intake to approximately 80 mmol.

Definitions:

Levels of Evidence

Level I: Evidence obtained from a systematic review of all relevant randomized controlled trials (RCTs)

Level II: Evidence obtained from at least one properly designed RCT

Level III: Evidence obtained from well-designed pseudo-randomized controlled trials (alternate allocation or some other method); comparative studies with concurrent controls and allocation not randomized, cohort studies, case-control studies, interrupted time series with a control group; comparative studies with historical control, two or more single arm studies, interrupted time series without a parallel control group

Level IV: Evidence obtained from case series, either post-test or pretest/post-test

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate management of dietary potassium in patients with chronic kidney disease

POTENTIAL HARMS

Not stated

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

Implementation and Audit

1. Early dietician advice and patient education about foodstuffs containing high potassium doses and food preparation is essential. Education of the patient in potassium sources in the diet by all members of the renal team is important.
2. Regular reinforcement of this knowledge and information with the patient is recommended. Frequency of such repeated education depends upon the patient and renal service resources.
3. Care must be taken so as to not lead to a general state of malnutrition when potassium restriction is implemented.
4. Recommend a target potassium daily intake range for the individual patient. This needs to be guided by plasma potassium levels, and may vary according to cultural foods or cardiac health.
5. A balance between the risk of potassium-elevating medications (especially angiotensin-converting enzyme [ACE] inhibitors, angiotensin receptor blockers [ARBs] and spironolactone) and their benefit needs to be considered.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2005 Dec

GUIDELINE DEVELOPER(S)

Caring for Australasians with Renal Impairment - Disease Specific Society

SOURCE(S) OF FUNDING

Industry-sponsored funding administered through Kidney Health Australia

GUIDELINE COMMITTEE

Not stated

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Author: David Voss

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

All guideline writers are required to fill out a declaration of conflict of interest.

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the Caring for Australasians with Renal Impairment Web site.

Print copies: Available from Caring for Australasians with Renal Impairment, Locked Bag 4001, Centre for Kidney Research, Westmead NSW, Australia 2145

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- The CARI guidelines. A guide for writers. Caring for Australasians with Renal Impairment. 2006 May. 6 p.

Electronic copies: Available from the Caring for Australasians with Renal Impairment (CARI) Web site.

PATIENT RESOURCES

None available

NGC STATUS

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